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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO.  | CONFIRMATION NO. |
|---|-------------|----------------------|----------------------|------------------|
| 10/568,808  | 02/21/2006  | Susumu Haratani      | P29392               | 7569             |
| 7055  | 7590        | 02/14/2007           | EXAMINER             |                  |
| GREENBLUM & BERNSTEIN, P.L.C.<br>1950 ROLAND CLARKE PLACE<br>RESTON, VA 20191 |             |                      | GHAZZAWI, MOHAMMAD A |                  |
|   |             |                      | ART UNIT             | PAPER NUMBER     |
|   |             |                      | 2809                 |                  |
| SHORTENED STATUTORY PERIOD OF RESPONSE  |             | NOTIFICATION DATE    |                      | DELIVERY MODE    |
| 3 MONTHS  |             | 02/14/2007           |                      | ELECTRONIC       |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/14/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com  
pto@gbpatent.com

|                              |                               |                  |
|------------------------------|-------------------------------|------------------|
| <b>Office Action Summary</b> | Application No.               | Applicant(s)     |
|                              | 10/568,808                    | HARATANI ET AL.  |
|                              | Examiner<br>Mohammad Ghazzawi | Art Unit<br>2809 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 02-21-2006.  
 2a) This action is FINAL.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-9 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-9 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 21 February 2006 is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

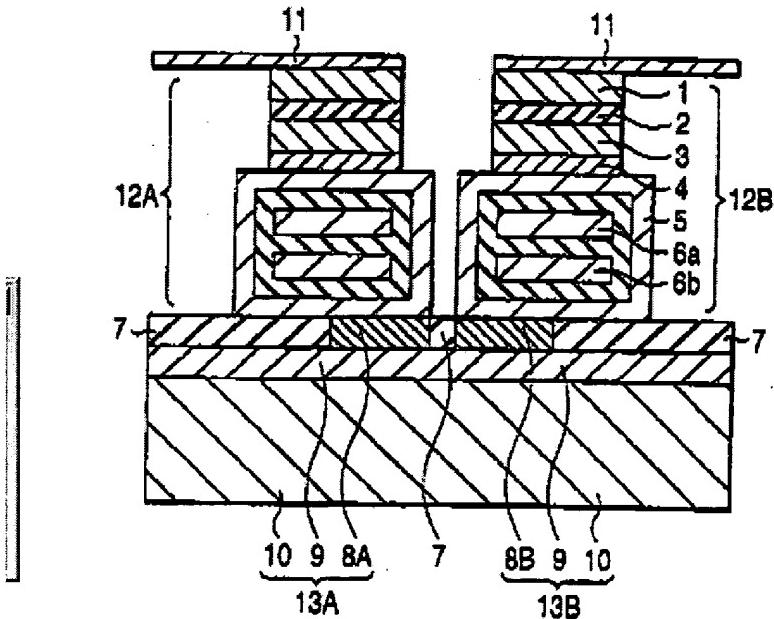
- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date: _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>5-22-2006</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION*****Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9 are rejected under 103(a) as being unpatentable over Ezaki et al. (Ezaki), USPUB 2004/0114425.

***FIG. 7***

Regarding claims 1, 2, & 4, Ezaki discloses (page 3, para 0020) and shows in figure 7:

- a plurality of magnetoresistance elements each including a laminate including a magnetosensitive layer having a magnetization direction variable in accordance with an external magnetic field and adapted to allow an electric current to flow in a direction perpendicular to a laminated surface of the laminate;
- an annular magnetic layer disposed on one surface side of the laminate;
- figure 7 shows the annular magnetic layers [5] arranged side by side.

Furthermore, Ezaki discloses the claimed invention except for the magnetosensitive layer having a thickness set in a range of not less than 0.5 nm, to not more than 40 nm. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify Ezaki, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 3, Ezaki discloses (page 10, para 0116) that is desired that the first magnetic layer [1] and the second magnetic layer [3] have easy axes of magnetization parallelized to each other in order to stabilize the state where the magnetization directions are parallel or antiparallel to each other.

Regarding claim 5, figure 7 shows a plurality of the conductors [4] extending through the plurality of annular magnetic layers [5], and the plurality of the conductors

extend in parallel to each other in a region where the plurality of the conductors extend through the plurality of annular magnetic layers.

Regarding claim 6, Ezaki discloses (page 12, para 0132) that the magnetization of the second magnetic layer [3] can be reversed with necessary and sufficient magnetic field intensity.

Regarding claim 7, Ezaki discloses (page 12, para 0141) that information is performed by detecting a difference between values of currents flowing through the magnetic memory elements.

Regarding claim 9, Ezaki discloses (page 13, para 0150) that values of currents flowing through the sense bit lines are values corresponding to the resistance values of the paired magnetic memory elements.

*Product by Process claim rejection*

Regarding claim 8, as to the limitation of forming the first magnetic layer is considered as a product by process limitation. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777F, 2d 659, 698, 227 USPQ 964, 966 (Fed. Cir. 1985); see also MPEP 2113.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ghazzawi whose telephone number is (571) 272-9756. The examiner can normally be reached on m-f every other friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur Chowdhury can be reached on (571) 272-9819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Mohammad Ghazzawi

MAG  
2-6-07

Kimberly D. Nguyen  
PRIMARY EXAMINER